Notebook, N-10-07-29

July 27 1915

Experiments on tetranapthalene + Shellac find a Chemical to keep the shellac from decomposing

1/2 Tetrachloronapthalen
1/2 Shellac -

Melt Tetra then add the shellac in small lots stirring all the times until all in —

Then add 1/5 more of X — and keep it at a temperature where it is about as liquid as it was before X added See How long it takes before it goes to a jelly

	Shellac	Thermax	solvent	Name of solvent	hr run	Temp		Soft	Hard	Brittle	Tough	Remarks
	grams											
1	5	5	2	salicylic acid.	1	110	m "	m		"		To Much Solvent
2	5	5	"	analine	3	110		m		"		" " "
3	5	5	¼	Phenol		110				"		
4	5	5	2	ortho Chlor analine	6	110		m		"	ok	looks good
5	5	5	1	Creasote	3	110		m		"		~~" " "~~ Ng
6	5	5	2	Toluene	1½	110		m	s			Napn excess
7	5	5	2	Napthaline Bichromate	2	110		v		"	ok	
8	5	5	2	" alpho Mono Nitro	2½	110				"		" " "
9	5	5	2	Xylidine	9	115	"			"		to soft
10	5	5	2	Creasol	1	115		v		"		looks good
1	5	5	2	Palmitic Oleic + Stearic acid	1	112					ng	
2	5	5	2	The wax from Shellac	1¼	115		m		"	ok	excess of nap
3	5	5	2	Shellac free from wax	1¼	108		m		"	ok	excess of Nap
4	5	5	2	" + pure Stearic acid	1	110	"		"		ng	dark. Ng
5	5	5	2	Oleinic acid	2	110						
6	5	5	2	Pure Shellac + Common Shellac	2	110		"		"	ok	looks good
7	5	5	2	Palmitic acid	2	110	"			"		Rubbery
8	5	5	2	Stearic acid	2	110		m		"		Waxy
9	5	5	2	anisol	2½	110		m		"	Tuf	same as 12
20	5	5	2	Cimole	1	110	"			"		
1	5	5	2	Ethylene Chloride	1	110	"			"		hard
2	5	5	2	Caproic acid	1	110	"			"		
3	5	5	2	acetal	1	110	"			"	ng	
4	5	5	2	amylodia Butyrate	1	110						Thin hard
5	5	5	2	eather Formic	1	110						thin very hard
6	5	5	2	" anthracic	1	110						"

		Remarks	pro Run
27	Cumene	thin	
28	Mono Chloro Phenole ✓	" soft Rubbery	3
29	Methyl oxid Benzoic ✓	" very hard waxy	1
30	eather Benzoic	" " "	1
31	Carbon Bichloride	gas comes out	1
32	Phenyl Hydrazine	" " " Ng	1
3	Benzaldehyde ✓	very hard waxy	120
4	attriol ✓	to soft Ng	230.
5	amyl Butrate	very hard tough	130
6	Oxalic eather	soft Rubbery ✓	0,30
7	ext Radic Jalapa "	very hard Brittle	.20
8	Olenic acid	" Brittle	1,25
9	ext Kalmia fld.	React that congellis thin melts.	1½
40	acid Palmatic Com	soft No good.	2
1	Fusil Oil. Pure.	very hard	1
2	Urea Carbamid	coagelates the shellac	ng.
3	Benzoic acid ✓	~~looks good~~ very thin to soft	310
4	ext guiacum	~~very hard~~ " " good	210
5	3rd fraction from distillation of anthracene	" " " Brittle	1.20
6	Iron Resinate	~~gobules in it~~ fine try it	1.20
7	acid Chlorocrotonic	soft No good	1
8	" Cressotinic	hard, tough "	1
9	Pottasium Bichromate	Thick hard waxy	1
50	Creasote Oil.	thin " "	1
1	Ozokerite	Dont mix good Hard	110
2	Napthalamine alpha	looks good. "	
3	Yellow Ozokerite	Dont mix	1
4	Ichthyol	hard	120

asphalt
Nitro Phenol
Succinic acid
Benzyl Chloride
Pitch
sodium Silicate
sealing wax
anthracene
Lead Resinate
Barium "
Magnesium "

	hrs
hard Dont mix well	13.0
" same as Shellac	1
hard No good	30
" as Shellac	1
" " "	2
Dont mix good soft	0.30
very hard Red.	.25
" "	.45
	2

	Lead Chloride	Solvent	Mix
1	"	Nitro analine	"
2	"	Napthol alpha	"
3	"	Phenanthren	"
4	"	Resorcine	~~Mix~~
5	"	Acetanilid	—
6	"	Benzidine	Mix
7	"	Methylen phenylen amine	—
8	"	Crude Acetoluidine	—
ok 9	"	Dianisidine	Solvent
10	"	Phenol tri Bromide	Mix
1	"	Trichloro Phenol	—
2	"	Benzo Phenol	—
3	"	Nitro toluol	—
4	"	Phenylen diamine	Mix
5	"	Butyl Hydroquinone	—
6	"	Napthalene Bichromate	—
7	"	Nitro Phenole	Mix
8	"	Amido Phenole	"
9	"	Nitro toluol	—
20	"	Sebacic acid	Mix
1	"	Ortho Nitro Para Phenetidine	Mix
2		Para Dichloro Nitro Benzol	
3		Ortho Nitro Phenole	—
4		Dimethyl Diamido azobenzol	—
5		Flourene	Mix
6		Dichlor analine	—
7		Para Nitro acetanilid	Mix

	substance	Solvent	Mixture	Soluble	
28	Lead Chloride	Ortho toluole sulfonamide			
9	"	azobenzol		No good	
30	"	Amido Phenol	"		
1	"	Anthracene		No good	
2	"	Benzamid	"	"	ok
3	"	Ortho Nitro Para toluol		no good	
4	"	Para Nitro Chloro Benzol		no good	
5	"	Diphenylamine		no good	
6	"	Trichloro quinone		No good	
7	"	Carbazol		" "	
8	"	Hexachlorathan		" "	
9	"	Nitramido azobenzole		" "	
40	"	Mono alpha Nitro Naphthalin	"		
1	"	Azobenzole	"		
2	"	Thiocinnamine of		soluble	ok
3	"	Para nitro Chloro Benzole	"		
4	"	Nitroanaline ortho	"		
5	"	Trichloro Phenole	"		
6	"	Sulpho Phenyl		No good	
7	"	Dimethyl amino azobenzene	"	"	
8	"	Perchlorobenzol	"	"	
9	"	Heliotropine		"	
50	"	Phenanthrene	"		
1	"	D nitro Phenol	"		
2	"	Benzo Phenone		Nogood	
3	"	Nitro Nisol		"	
4	"	Cressotinic acid	"		
5	"	Dioxynaphthalin		Nogood	

		Soft	Hard	Mix	Sol	No good
56	alpha Naptha		—	—		
7	Benzanilid		—	—		
8	Nitro analin Meta		—	—		
9	Phenylendiamine		—	—		
60	anthra quinone		—	—		
1	Monobromated Camphor		—	—		
2	Phenacetine		—	—		
3	Para amido ortho Cresol		—	—	—	
4	Ortho amido Phenol		—	—	—	
5	Nitro Phenol Para		—	—		
6	Para dichlor analine					—
7	Quercitrin					—
8	Paraanisidine					—
9	Mono Methyl Para amido Phenol					—
7 0	Tetra Chlor quinone					—
1	Binitro toluole					—
2	Ortho toluidine	fine try it OK				
3	Nitro Benzoic acid					—
4	amido azo benzine					—
5	amido Phenol Ortho					—
6	" " Para					—
7	Toluendiamine com.		Hard Mix			
8	Para Nitro Anisol					—
9	Cinchonidine Benzoate				Soluble	
8 0	amido azo benzole				"	
1	alpha Mono Nitro Naphthalin					—
2	Tetra Methyl di amido di phenyl Methane					—
3	Toluendiamine Meta Com		Hard mix			

		Hand	Mix	Sol	No good
84	Toluendiamine Meta Com	—	—		
5	Picric acid	—	—		
6	Dinitro Napthalen	—	—		
7	Benzidine	—	—		
8	" Basic	—	—		
9	Hydro quinone	~~—~~	—		
90	Mononitro Napthelane [illegible]	—	—		
1	Meta Toluen diamine				—
2	Phtalic acid				—
3	Benzphenole				—
4	Hydro azobenzole				—
5	Exalgine				—
6	Methacetin	—	—		
7	Aceta Para Phenylendiamine	OK		Soluble fine	—
8	Haematein				
9	Chloro Nitro Benzole Para	Hand	mix		
100	Di nitro Benzole				
1	Thio [illegible]	fine OK try it			
2	Guandine Carbonato	No good			No good
3	Ortho Nitro Benzaldehyde				
4	" " Chloro Benzole				
5	Aceta Para amido Phenol	The Best try it OK fine			
6					
7					
8					
9					
110					
1					

Solvents for
Lead Chloride $PB\,Cl_2$

Ortho amido Phen
Acetparaphenylin diamine best
Ortho Toluidine good
Amido azobenzole
Nitra anailine Para
Aceta Paraamido-Phenole best
Thocinnamine soft
Dianisidine

Expts Aylsworth Resin
+ Chloride of lead.

Resin 2½ Chlorid 1 fair
" 2 better
" 3 better still
" 4 better than 3 &
3 5 best
" ~~+ [illegible]~~ 6 to thick
" + Paramido PAscol 3 best yet
" "
" ~~10 to [illegible] best proportion~~

10 of PBCl2 to 6 of Resin is the best proportion; more Chloride makes it tougher but too thick. Expts to make it thinner by solvents for the PBCl2

Resin Chloride
2½ + 6/10 ~~[illegible]~~ No good
2½ + 1% Thiocinnamine + 6 Chloride No good

10 $PBCl_2$ 6 Resin

1 gram of acetanilide
makes 18 to 20 of ~~Chloride~~
better than 2½ to 1 " that
dont have the Resin acetanilide
in.

Japan wax + Shellac no.

aug 25 1910

gave to Petit to put on
some forms
Resin asylworth. $PBCl_2$
108 grm 180

found that Phenole
is the proper volatile solvent
to use for preventing the Resin
from becoming thick and
the thickening is due too (the)
evaporation of the Phenole
in the Resin try more
10-6 and maybe more
Chloride thining it with
Phenole som fair Records
Made of it heating Makes
it hard and tough.

Experiments
J.W.a.

PB Cl_2 grams	Resin grams	Phenol grams
1	5	
2	5	
3	5	
4	5	
5	5	
6	5	
7	5	
8	5	
9	5	
10	5	
11	5	
12	5	
13	5	
14	5	
15	5	
16	5	
17	5	
18	5	
19	5	
20	5	
21	5	
22	5	
23	5	
24	5	
25	5	

liquid

best Solvents ~~Rb~~ BeCl$_2$

1 acetylen tetra Chloride
2 Phenetol
3 Bichlorobenzol
4 Isobutyl Xylol
5 Nitro Xylol Para
6 " " Meta
7 Monochloro toluol
8 Perchlorethylen
9 Methyl ethyl Ketone
10 Picoline
11 Monomethyl analine
12 Xylol ortho com
13 Xylidine Meta
14 " only
15 " Para
16 Nitro toluol ortho
17 Methyl Benzanilid
18 Ortho Phenetidine
19 Dichloro hydrine alpha
20 Xylidine Para
21

22 second best
23 Monochlorohydrine
24 Tricresol
25 Monoethyl Para toluide
26 Ortho Chloranilin
27 Nitro anisol ortho

No Good for Solvent

28 Eugenol Iso
29 Creasote
30 Trichlorethan
31 Para Phenetidine
32 Monoethyl Toluidine
33 Methylal
34 Anisol
35 Aniline
36 Hypnon
37 Nitro Toluol
38 Mono Chlor Naphthaline
39 Dimethyl quinine
40 Diethyl aniline
41 Toluidine Xylene
42 Methyl Di Phenylamine

Experiments to [illegible] the Phenol Resin by boiling with a Solvent to displace the Phenol.

Solvents	Remarks.
Methyl Ethyl Ketone	
Nitro Xylol	
Mono Chloro benzol	
Isobutyl Xylol	
Nitro Anisol	Ortho Com.

It seems that J W C the Old man are working on a Bakelyte that is made with a volatile solvent that take the place of Phenol in the CH_2O Reaction. Therefore the Gum mix a filler in this evaporate the solvent make a plastic dope then press the Record and every thing is tough as hell -